

EXHIBIT B

Docket No. E040004USU1

PATENT
Serial No. 11/231,349

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Brett Bernath et al.

Serial No.: 11/231,349

Filed: 19-Sep-2005

For: A BROADBAND LOCAL AREA
NETWORK

Group Art Unit: 2423

Confirmation No. 4520

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attention: **James Leija**
Examiner

Dear Sir:

Responsive to the Non-Final Office Action dated **December 20, 2011**, please amend the above-identified application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

I hereby certify that this correspondence is being electronically deposited with the Commissioner for Patents through the USPTO electronic filing system, on:

March 20, 2012

(Date of Deposit)

Tim Ellis

(Name of Person Making Deposit)

/Tim Ellis/

(Signature)

AMENDMENT TO THE CLAIMS

This listing and version of the claims replace all prior listing and versions of the claims.

Listing of Claims

What is claimed is:

1. (Previously Presented) A Broadband Coaxial Network (“BCN”), comprising:
 - a first BCN modem in signal communication with a coaxial cable network (“CCN”), the first BCN modem including a first controller; and
 - a second BCN modem in signal communication with the CCN including a second controller,
 - wherein each of the first and second controllers are configured to probe at least one respective communication link connecting that controller directly to at least one other BCN modem and to adjust transmission power and bit loading over the at least one respective communication link based on a result of the probe;
 - wherein one of the first and second controllers is a network controller configured to coordinate the admission of other BCN modems to the CCN without disrupting data transmission in the CCN; and
 - wherein the BCN provides both best effort capabilities in which short term requests are made and time allocation grants to transmit packets received by a BCN modem, and reserved communications capabilities in which long term requests are made and a specific allocation is granted for a certain data rate.
 2. (Canceled)
 3. (Canceled)
 4. (Previously Presented) The BCN of claim 1, wherein the second controller is configured to detect a control signal that identifies that the network controller is coupled to the CCN.
 5. (Original) The BCN of claim 1, wherein the signal communication occurs between the BCN modems that are located within a building.

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6. (Original) The BCN of claim 5, wherein the building is a single family home.
7. (Original) The BCN of claim 5 wherein the building is a multi-unit dwelling unit.
8. (Previously presented) The BCN of claim 1, wherein the signal communication occurs via a Time Division Multiple Access (TDMA) access scheme on one or more Radio Frequency (RF) channels.
9. (Original) The BCN network of claim 1, wherein the signal communication carries encrypted data between the first BCN modem and the other BCN modem.
10. (Previously Presented) A Broadband Coaxial Network (“BCN”) for communicating on an in-building coaxial cable network (“CCN”), comprising:
 - a first BCN modem connected to a coaxial cable network (“CCN”) and included in a plurality of BCN modems in the BCN network, the first BCN modem including a controller having communication links to ones of the plurality of BCN modems and configured to manage data transmission between each of the BCN modems in the BCN network; and
 - another of the plurality of BCN modems connected to the CCN and capable of signal communication with the first BCN modem including a second controller having communication links to ones of the plurality of BCN modems,
 - wherein each of the controllers is configured to periodically probe each of their communication links to other BCN modems and to adjust transmission power over each of the communication links based on the probe through orthogonal frequency division multiplexing (OFDM) and bit-loading;
 - wherein the first controller establishes the first BCN modem as a network controller (NC) upon connection to the CCN, the network controller configured to coordinate the assignment of time slots during which data transmission between each of the BCN modems connected to the CCN occur, the BCN provides both best effort capabilities in which short term requests are made by at least one BCN modem and time allocation grants to transmit packets are provided by the first BCN modem, and reserved communications capabilities in which long term requests are

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made by at least one BCN modem and a specific allocation is granted for a certain data rate by the first BCN modem; and

wherein the NC is configured to coordinate the admission of other BCN modems to the CCN without disrupting data transmission between the plurality of BCN modems.

11. (Previously presented) The BCN of claim 10, wherein the first BCN modem employs adaptive communication techniques that adapt to the characteristics of a coaxial channel between the first BCN modem and the other BCN modem.

12. (Previously presented) The BCN of claim 10, wherein the first BCN modem is directly in signal communication with the other BCN modem across the CCN.

13. (Original) The BCN of claim 12 wherein the CCN is a type of network having an architectural configuration selected from a group consisting of a star configuration and a mesh configuration and a combination of these configurations, in a TDMA, TDD access fashion, and the type of network utilizes at least one frequency channel.

14. (Previously presented) The BCN of claim 11, wherein the adaptive communication techniques includes utilization of the adaptive communication techniques in both transmitting processing and receiving processing of data.

15. (Original) The BCN of claim 14, wherein the adaptive communication techniques utilize pre-coding for transmitting processing.

16. (Original) The BCN of claim 14, wherein the adaptive communication techniques utilize adaptive equalization for receiving processing.

17. (Original) The BCN of claim 14, wherein the adaptive communication techniques include pre-coding for transmitting processing based on known or learned channel response.

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18. (Original) The BCN of claim 14, wherein additional signal processing techniques are used which are selected from a group consisting of OFDM bit-loading, transmit power control, transmission diversity, OFDM cyclic prefix, and probes.

19. (Canceled)

20. (Canceled)

21. (Previously presented) The BCN of claim 10, wherein the NC includes a configuration selected from the group consisting of:

a configuration that enables every BCN modem to act as a NC;

a configuration that utilizes a frequency plan;

a configuration that allows a new BCN modem admission to the BCN Network;

a configuration that allows a new BCN modem to communicate with another BCN modem to characterize the channel response between them and determine a bit loading in either direction; and

a configuration that allows each BCN modem in the network to request and be granted a transmission opportunity without a transmission conflict.

22. (Original) The BCN of claim 21, wherein the communications services provided by the BCN include BCN wide transmission priorities.

23. (Canceled)

24. (Previously presented) The BCN of claim 10, wherein the BCN modem provides a protocol adaptation layer for communication over the BCN, the protocol adaptation layer utilizes protocols selected from the group consisting of:

Ethernet,

IEEE 1394,

Universal Serial Bus (“USB”); and

MPEG-TS.

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25. (Original) The BCN of claim 11, wherein the BCN modem is embedded as a part of a device selected from the group consisting of:

- a set-top box (“STB”);
- a Personal Computer (PC);
- an IP STB;
- a Media Center box;
- a Media Extender box;
- a DVD player;
- a cable modem;
- a personal video recorder (“PVR”);
- a TV set;
- a networking device;
- a switch/router;
- a bridge/Gateway;
- a video game console;
- a wireless access point (WAP); and
- a network attached storage.

26. (Previously presented) The BCN of claim 11, wherein the BCN modem is a device selected from the group consisting of a satellite STB, cable STB, and DSL STB.

27. (Original) The BCN of claim 25, wherein the BCN modem utilizes the PCI bus structure.

28. (Original) The BCN of claim 27, wherein the BCN modem utilizes another host device.

29. (Original) The BCN of claim 28, wherein the host device is either a bridging host device or a switching host device.

30. (Original) The BCN of claim 10, wherein an at least one TDMA frequency channel used by the BCN network is in one or more of the following frequency bands:

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above 860 MHz;
between 860 MHz and 950 MHz; and
below 50 MHz.

31. (Original) The BCN of claim 10, wherein the CCN network is one of the following:
coaxial cables that have been installed for the carriage of satellite signals; and
coaxial cables for video distribution.
32. (Previously Presented) A network device, comprising:
a communication interface configured to connect to a broadband coaxial network (“BCN”); and
a controller in signal communication with the communication interface, the controller configured to:
periodically probe a communication link to another network device to determine a characteristic of the communication link;
use orthogonal frequency division multiplexing and bit-loading to adjust transmissions over each communication link based in part on the probe;
manage data transmission between each network device connected to the BCN by assigning time slots during which data transmission between each of the network devices occur;
provide both best effort capabilities in which short term requests are made by at least one BCN modem and time allocation grants to transmit packets are provided by the controller, and reserved communications capabilities in which long term requests are made by at least one BCN modem and a specific allocation is granted for a certain data rate by the controller; and
coordinate the admission of other BCN modems to the CCN without disrupting data transmission in the CCN.
33. (Previously Presented) The BCN of claim 1, wherein the network controller is configured to periodically broadcast a packet of a first type to each BCN modem connected to the CCN using a lower order modulation than an order of modulation used by BCN modems to transmit packets of a second type directly between each other.

REMARKS

Claims 1, 4-18, 21, 22, and 24-33 are currently pending.

No Claims have been amended.

No Claims have been cancelled.

Applicants respectfully request reconsideration as applicants believe that all claims are now in condition for allowance as noted below.

Rejections Under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 1, 4, 5, and 6 under 35 U.S.C. 103(a) as being unpatentable over Dinwiddie et al. (USPN 6,481,013) and further in view of Bell (USPN 6,052,380), and Emerson et al (US 2003/0091067), and Padwekar (US 2006/0221819). For at least the reasons presented here, Applicants respectfully contend that Claims 1, 4, 5, and 6 are patentable over all cited references.

In the most recent office action, the Examiner has newly cited Padwekar as providing the element that is lacking from the other cited references. The Examiner particular points to paragraphs paragraph [0036] and figures 1 and 2 as disclosing a first and second controller that functions as a network controller. The Examiner also points to paragraphs [0029] and [0037] as supporting the Examiner's contention that Padwekar discloses a controller that is "configured to coordinate the admission of other BCN modems to the CCN without disrupting data transmission in the CCN".

Applicants note that in the originally filed application, at paragraph [050], a Network Controller ("NC") is disclosed as providing "all necessary information allowing other BCN modems to be admitted to the network, adapt to the network characteristics, synchronize to the

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network timing and framing, make transmission requests and be able to communicate with some or all of the other BCN modems in the network.” Additional disclosure regarding the functions of the NC are provided as well. These include the process that ensues when a new BCN wishes to join a CCN network.

While Padwekar discloses “a new policer joining a group of policers without disrupting the operation of the other policers” as noted in Paragraph [0039] of Padwekar, this is substantially different from the recited limitation which recites a NC that is “configured to coordinate the admission of other BCN modems to the CCN without disrupting data transmission in the CCN” for at least the following reasons. Firstly, there is a significant difference between coordinating the admission of a BCN modem as recited in Claim 1 and adding a new policer to a group of policers that is already performing distributed policing for a traffic class. Evidence of this difference can be seen in from the fact that the disruption that is referenced is quite different. That is, Claim 1 recites “without disrupting data transmission in the CCN”. In contrast, Padwekar discloses “without disrupting the operation of the other policers.” As can be seen from several places in Padwekar, the operation of the policers is to “perform policing by measuring the incoming traffic in that class and then comparing that measure with policing parameters selected by the network administrator.” (Padwekar, paragraph [0003]).

While these phrases initially sound alike, upon close inspection, it can be seen that they are actually quite different. Returning to the differences between admitting an new BCN modem and adding a new policer, it should be clear that a new policer could be added by allowing a device that is already admitted to the network perform the policing function.

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Accordingly, the limitations recited in Claim 1 are not taught, and furthermore, it would **not be reasonable** for one to combine the teachings of Padwekar and other cited references in order to perform the functions that are recited in Claim 1. That is, it would be completely unreasonable to expect that one of ordinary skill in the art, without the use of impermissible hindsight, would consider taking the teaching of Padwekar and combining that with the teaching of Dinwiddie, Bell and Emerson to arrive at the present invention, and **even to do so would not result in the invention** as recited in Claim 1.

Accordingly, Applicants respectfully request that the Examiner reconsider and allowance of Claim 1 for at least the above reasons. Furthermore, for the same reasons, Applicants respectfully request reconsideration and allowance of Claims 4-6.

Claim 7 depends from claim 1. Dinwiddie, Bell, Emerson and Padwekar fail to teach or suggest a BCN network that includes a network controller configured to coordinate the admission of other BCN modems to the CCN without disrupting data transmission in the CCN. As noted in previous submissions, El Wardani fails to cure the deficiencies of Dinwiddie, Bell, Emerson and Padwekar with respect to these claimed features.

Accordingly, claim 7 is allowable over Dinwiddie, Bell, Emerson, El Wardani and Padwekar at least by virtue of its dependence from claim 1. Reconsideration and allowance of claim 7 is therefore requested.

Claim 8 depends from claim 1 and stands rejected over Dinwiddie in view of Bell, Emerson, Gurantz and Padwekar. As noted in previous submissions, Gurantz fails to cure the deficiencies of Dinwiddie, Bell, Emerson and Padwekar with respect to these claimed features

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noted with regard to Claim 1. Accordingly, Applicants contend that Claim 8 is allowable.

Applicants respectfully request reconsideration and allowance of Claim 8.

Claim 9 depends from claim 1 and stands rejected over Dinwiddie in view of Bell, Emerson, Droke and Padwekar. Droke fails to disclose the lacking element of a BCN network that includes a network controller configured to coordinate the admission of other BCN modems to the CCN without disrupting data transmission in the CCN. Accordingly, for the reasons provided above with respect to Claim 1, Applicants respectfully request reconsideration and allowance of Claim 9.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dinwiddie et al. (USPN 6,481,013) and further in view of Bell (USPN 6,052,380), and Emerson et al (US 2003/0091067), and Padwekar (US 2006/0221819), and Gurney et al. (US 2005/0175123).

The Examiner has rejected Claims 10-12,14,15,17, and 31 under 35 U.S.C. 103(a) as being unpatentable over Dinwiddie et al. (USPN 6,481,013) and further in view of and Bell (USPN 6,052,380), and Silverman (USPN 6,307,862), and Emerson et al (US 2003/0091067) and Padwekar (US 2006/0221819).

Claim 10 was previously amended to recite “wherein the NC is configured to coordinate the admission of other BCN modems to the CCN without disrupting data transmission between the plurality of BCN modems.” Silverman fails to cure the deficiencies of Dinwiddie, Bell, Emerson and Padwekar with respect to these claimed features. Accordingly, for the reasons

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provided above with respect to Claim 1, Applicants respectfully request reconsideration and allowance of Claim 10.

Claims 11–12, 14, 15, 17, and 31 depend from claim 10 and are allowable at least by virtue of their dependence. Reconsideration and allowance of claims 10–12, 14, 15, 17, and 31 are respectfully requested.

Claims 13, 18, and 26 depend from claim 10 and stand rejected over Dinwiddie, Bell, Silverman, Emerson, Gurantz and Padwekar. Claims 13, 18, and 26 are allowable over Dinwiddie, Bell, Silverman, Emerson, Gurantz and Padwekar for the reasons set forth above with respect to claims 10 and 8. Reconsideration and allowance of claims 13, 18, and 26 are requested.

Claims 16, 25, and 27-30 depend from claim 10 and stand rejected over Dinwiddie, Bell, Silverman, Emerson, El Wardani and Padwekar. Claims 16, 25, and 27-30 are allowable over Dinwiddie, Bell, Silverman, Emerson, El Wardani and Padwekar as set forth above with respect to claims 10 and 7.

Claims 21, 22, and 24, which depend from claim 10, stand rejected over Dinwiddie, Bell, Silverman, Emerson, Padwekar and Gorman. As set forth above with respect to claim 10, Dinwiddie, Bell, Silverman, Emerson and Padwekar do not teach or suggest a BCN including a NC is configured to coordinate the admission of other BCN modems to the CCN without

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disrupting data transmission between the plurality of BCN modems. As noted in previous submissions, Gorman fails to teach or suggest these claimed features.

Accordingly, claims 21, 22, and 24 are allowable over Dinwiddie, Bell, Silverman, Emerson, Gorman and Padwekar. Reconsideration and allowance of claims 21, 22, and 24 are requested.

Claim 32 stands rejected as allegedly being unpatentable over Dinwiddie in view of Bell Silverman and Padwekar. Claim 32 was previously been amended to recite, “coordinate the admission of other BCN modems to the CCN without disrupting data transmission in the CCN.” Claim 32 is allowable over Dinwiddie, Bell, Silverman and Padwekar for at least the same reasons set forth above with respect to claims 1 and 10. Reconsideration and allowance of claim 32 are requested.

Claim 33 depends from claim 1 recites “wherein the network controller is configured to periodically broadcast a packet of a first type to each BCN modem connected to the CCN using a lower order modulation than an order of modulation used by BCN modems to transmit packets of a second type directly between each other.” By virtue of its dependence on Claim 1, Applicants contend that Claim 32 is allowable over Dinwiddie, Bell, Silverman and Padwekar for at least the same reasons set forth above with respect to claims 1. Reconsideration and allowance of claim 33 is therefore, requested.

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CONCLUSION

Applicants believe that all claims pending in the application are allowable. Applicants therefore respectfully request that a timely Notice of Allowance be issued in this case.

This is a response to the Office Action mailed on December 20, 2011, and as such, is submitted timely.

If there are any other fees due in connection with the filing of the response, please charge the fees to our Deposit Account No. 50-4613. If a fee is required for an additional extension of time under 37 CFR 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned.

Respectfully submitted,

Dated: March 20, 2012

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